

REMARKS

Claims 1, 2, 5, 12, 13, and 20-26 are pending. Claims 1, 2, 5, and 12 are amended. Claims 3, 4, 6-11, and 14-19 are canceled. Claims 20-26 are added. Support for the amendments and new claims 20-26 may be found on at least page 11, line 3, to page 16, line 16. Reconsideration of the claims is respectfully requested in view of the following remarks.

I. 35 U.S.C. § 102, Alleged Anticipation of claims 1, 5, and 12

The Office rejects claims 1, 3-12, 14-16, 18, and 19 under 35 U.S.C. § 102(a) as allegedly being anticipated by *Fischer et al.* (U.S. Patent No. 6,542,987). This rejection is respectfully traversed.

Fischer teaches a method and circuits for detection of a full queue. *Fischer* teaches adding a number of instructions issued for cycle K-1 and a number of instructions speculatively issued in cycle K-1 that have produced a cache hit, and subtracts from the sum a number of instructions enqueued for cycle K-1. The result indicates a number of invalid instructions at cycle K. The result is compared with either the number of instructions to be enqueued in the present cycle or with a predetermined value. *Fischer* teaches generating a stall signal if the indicative value is less than the encoded number or the predetermined value.

In contradistinction, the presently claimed invention determines a known count representing a number of commands in the command pipeline and in the command queue and an unknown count representing a predicted count of future commands. The presently claimed invention then sums the known count and the unknown count and determines whether the sum is greater than the queue depth of the command queue. If the sum is greater than the queue depth, stall logic stalls command performance.

Fischer does not teach or suggest performing a stall based on whether a sum of a known count and an unknown count is greater than the queue depth. The Office Action alleges that *Fischer* teaches a known count representing a number of commands in the command pipeline and in the command queue and an unknown count representing a predicted count of future commands at FIG. 13. This figure is as reproduced below:

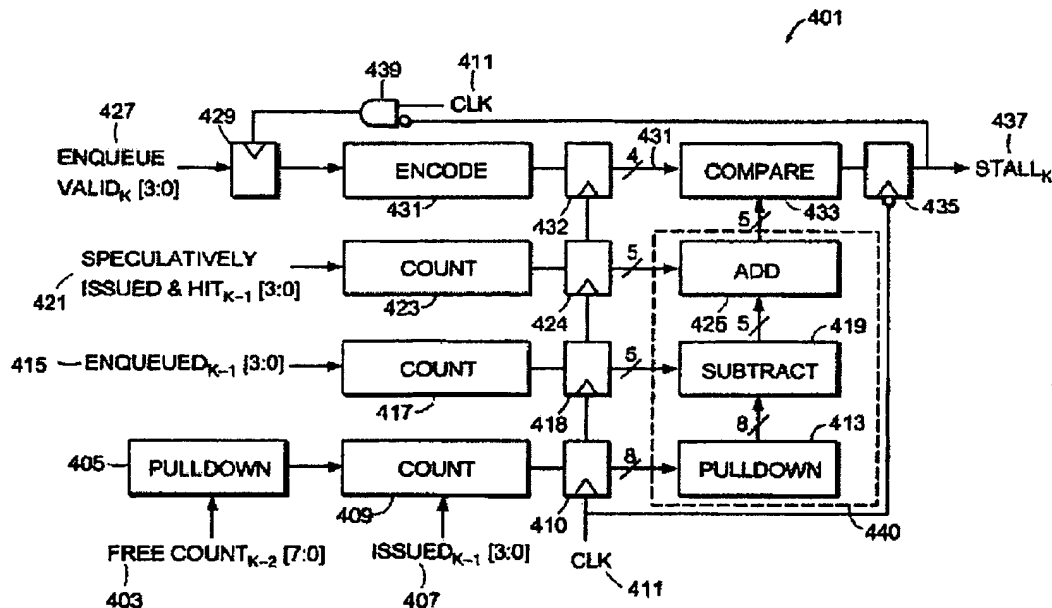


FIG. 13

Certainly, *Fischer* teaches counters. Applicant respectfully submits that *Fischer* does not teach or suggest the known and unknown counters recited in claim 1, for example. The Office Action alleges that *Fischer* teaches the unknown count of the present invention because *Fischer* allegedly teaches a count of speculatively issued instructions that produce a cache hit. However, speculatively issued instructions are issued instructions. This count taught by *Fischer* is not a **predicted** count of **future** commands; rather, the count of speculatively issued instructions that produce a cache hit in *Fischer* is a count of **actually** issued commands that happen to be issued based on an unresolved condition.

Furthermore, *Fischer* does not teach or suggest stall logic that stalls performance of the plurality of commands issued by the processor responsive to a sum of the known counter and the unknown counter being greater than the queue depth. The Office Action alleges that *Fischer* teaches this feature at col. 9, line 11, to col. 10, line 46. In this lengthy passage, *Fischer* describes adding the number of instructions issued in cycle K-1 to the free count, adding issued instructions, subtracting the number of enqueued instructions, and then adding the number of speculatively issued instructions. However, *Fischer* does not teach or fairly suggest summing a known count representing a number

of commands in the command pipeline and in the command queue and an unknown count representing a predicted count of future commands.

Still further, the cited portion of *Fischer* teaches comparing the encoded count with the result of the adder/subtractor circuit. See *Fischer*, col. 10, lines 25-27. *Fischer* does not teach or fairly suggest comparing a sum of a known count and unknown count, as described above, with a queue length. The applied reference fails to teach or suggest each and every claim limitation; therefore, claim 1, for example, is not anticipated by *Fischer*. Independent claim 12, as well as new claim 22, recite limitation addressed above with respect to claim 1 and are allowable for similar reasons. Since dependent claim 5 depends from claim 1, the same distinctions between *Fischer* and the invention recited in claim 1 apply for this claim. In addition, claim 5 recites further combinations of features not taught or suggested by the reference.

Therefore, Applicant respectfully requests withdrawal of the rejection of claims 1, 5, and 12 under 35 U.S.C. § 102(a).

II. 35 U.S.C. § 103, Alleged Obviousness of claims 2 and 13

The Office rejects claims 2, 13, and 17 under 35 U.S.C. § 103(a) as allegedly being unpatentable by *Fischer*. This rejection is respectfully traversed.

Since claims 2 and 13 depend from claims 1 and 12, the same distinctions between *Fischer* and the invention recited in claims 1 and 12 apply for these claims. In addition, claims 2 and 13 recite further combinations of features not taught or suggested by the reference.

As stated above, *Fischer* does not teach or fairly suggest stall logic that stalls performance of the plurality of commands issued by the processor responsive to a sum of the known counter and the unknown counter being greater than the queue depth, particularly where the unknown counter represents a predicted count of future commands. The alleged well known subject matter presented in the body of the rejection under 35 U.S.C. § 103 does not make up for the deficiencies of *Fischer*. Thus, even given the proposed modification, *Fischer* still fails to render claims 2 and 13 obvious.

Therefore, Applicant respectfully requests withdrawal of the rejection of claims 2 and 13 under 35 U.S.C. § 103(a).

III. New Claims 20-26

New claims 20-26 substantially recite subject matter previously presented in original claims 1-19 and addressed above with respect to claims 1, 2, 5, 12, and 13. In addition, claims 20-26 recite further combinations of features not taught or suggested by the cited prior art.

IV. Conclusion

It is respectfully urged that the subject application is now in condition for allowance. The Examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the Examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

Respectfully submitted,



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